

Silicon Rectifier Diodes, (Stud Version) 15 A



DO-203AB (DO-5)

FEATURES

- Low thermal impedance
- High case temperature
- Excellent reliability
- Maximum design flexibility
- Can be made to meet stringent military, aerospace and other high reliability requirements
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

PRODUCT SUMMARY

| | |
|-----------------------|-----------------|
| $I_{F(AV)}$ | 15 A |
| Package | DO-203AB (DO-5) |
| Circuit configuration | Single diode |

MAJOR RATINGS AND CHARACTERISTICS

| PARAMETER | TEST CONDITIONS | VALUES | UNITS |
|---------------|-----------------|--------------------|-------------------|
| $I_{F(AV)}$ | | 15 ⁽¹⁾ | A |
| | T_C | 150 ⁽¹⁾ | °C |
| I_{FSM} | 50 Hz | 239 | A |
| | 60 Hz | 250 ⁽¹⁾ | |
| I^2t | 50 Hz | 286 | A ² s |
| | 60 Hz | 260 | |
| $I^2\sqrt{t}$ | | 3870 | A ² √s |
| V_{RRM} | Range | 50 to 600 | V |
| T_J | | -65 to 175 | °C |

Note

⁽¹⁾ JEDEC® registered values

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS

| TYPE NUMBER | V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE ($T_J = -65\text{ °C TO }175\text{ °C}$) V | V_{RM} , MAXIMUM DIRECT REVERSE VOLTAGE ($T_J = -65\text{ °C TO }175\text{ °C}$) V |
|-------------|--|--|
| VS-1N3208 | 50 ⁽¹⁾ | 50 ⁽¹⁾ |
| VS-1N3209 | 100 ⁽¹⁾ | 100 ⁽¹⁾ |
| VS-1N3210 | 200 ⁽¹⁾ | 200 ⁽¹⁾ |
| VS-1N3211 | 300 ⁽¹⁾ | 300 ⁽¹⁾ |
| VS-1N3212 | 400 ⁽¹⁾ | 400 ⁽¹⁾ |
| VS-1N3213 | 500 ⁽¹⁾ | 500 ⁽¹⁾ |
| VS-1N3214 | 600 ⁽¹⁾ | 600 ⁽¹⁾ |

Notes

⁽¹⁾ JEDEC registered values

- Basic type number indicates cathode to case. For anode to case, add "R" to part number, e.g. 1N3208R, 1N3209R



| FORWARD CONDUCTION | | | | | |
|---|------------------------------|--|---|--------------------|-------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum average forward current at case temperature | $I_{F(AV)}$ | 180° sinusoidal conduction | | 15 ⁽¹⁾ | A |
| | | | | 150 ⁽¹⁾ | °C |
| Maximum peak one cycle non-repetitive surge current | I_{FSM} | Half cycle 50 Hz sine wave or 6 ms rectangular pulse | Following any rated load condition and with rated V_{RRM} applied | 239 | A |
| | | Half cycle 60 Hz sine wave or 5 ms rectangular pulse | | 250 ⁽¹⁾ | |
| | | Half cycle 50 Hz sine wave or 6 ms rectangular pulse | Following any rated load condition and with V_{RRM} applied following surge = 0 | 284 | |
| | | Half cycle 60 Hz sine wave or 5 ms rectangular pulse | | 297 | |
| Maximum I^2t for fusing | I^2t | t = 10 ms | With rated V_{RRM} applied following surge, initial $T_J = 150$ °C | 286 | A ² s |
| | | t = 8.3 ms | | 260 | |
| Maximum I^2t for individual device fusing | | t = 10 ms | With $V_{RRM} = 0$ following surge, initial $T_J = 150$ °C | 403 | |
| | | t = 8.3 ms | | 368 | |
| Maximum $I^2\sqrt{t}$ for individual device fusing | $I^2\sqrt{t}$ ⁽²⁾ | t = 0.1 ms to 10 ms, $V_{RRM} = 0$ following surge | | 3870 | A ² √s |
| Maximum forward voltage drop | V_{FM} | $I_{F(AV)} = 15$ A (47.1 A peak), $T_C = 150$ °C | | 1.5 ⁽¹⁾ | V |
| Maximum average reverse current | $I_{R(AV)}$ | Maximum rated $I_{F(AV)}$ and $T_C = 150$ °C | | 10 ⁽¹⁾ | mA |

Notes

- (1) JEDEC registered values
- (2) I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$

| THERMAL AND MECHANICAL SPECIFICATIONS | | | | | |
|--|----------------|---|--|---------------------------|-------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum junction operating and storage temperature range | T_J, T_{Stg} | | | -65 to 175 ⁽¹⁾ | °C |
| Maximum internal thermal resistance, junction to case | R_{thJC} | DC operation | | 0.65 | °C/W |
| Thermal resistance, case to sink | R_{thCS} | Mounting surface, smooth, flat and greased | | 0.25 | |
| Maximum allowable mounting torque (+0 %, -10 %) | | Not lubricated thread, tightening on nut ⁽²⁾ | | 3.4 (30) | |
| | | Lubricated thread, tightening on nut ⁽²⁾ | | 2.3 (20) | |
| | | Not lubricated thread, tightening on hexagon ⁽³⁾ | | 4.2 (37) | |
| | | Lubricated thread, tightening on hexagon ⁽³⁾ | | 3.2 (28) | |
| Weight | | | | 28.5 | g |
| | | | | 1 | oz. |
| Case style | | JEDEC | | DO-203AB (DO-5) | |

Notes

- (1) JEDEC registered values
- (2) Recommended for pass-through holes
- (3) Recommended for holed threaded heatsinks

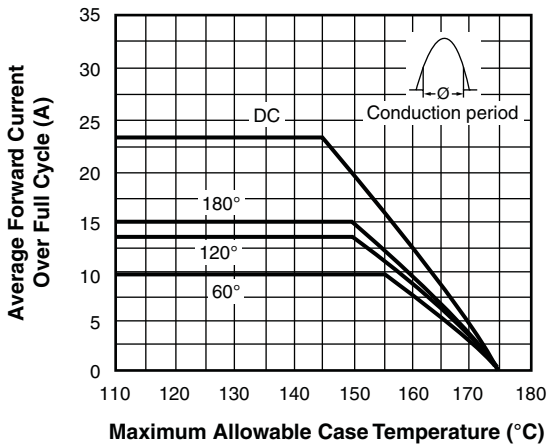


Fig. 1 - Average Forward Current vs. Maximum Allowable Case Temperature

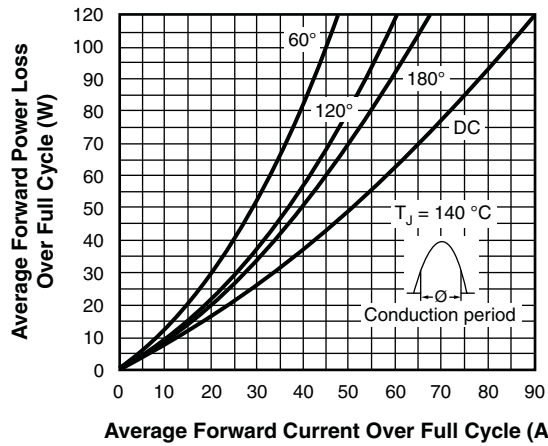


Fig. 3 - Maximum Low Level Forward Power Loss vs. Average Forward Current

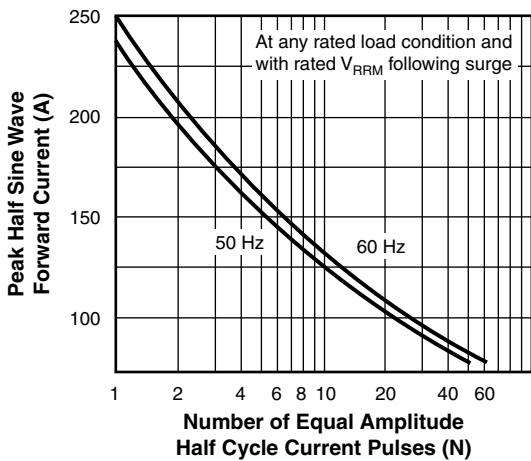


Fig. 2 - Maximum Non-Repetitive Surge Current vs. Number of Current Pulses

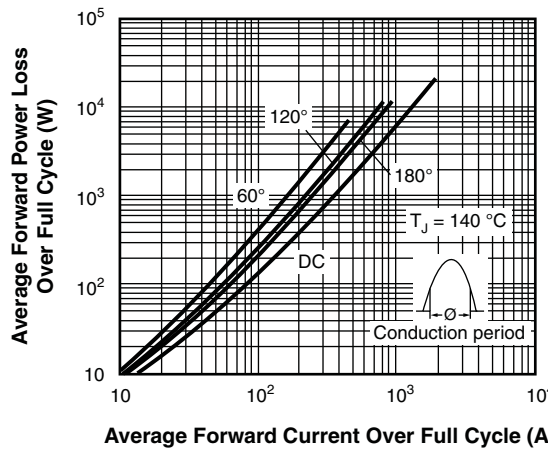


Fig. 4 - Maximum High Level Forward Power Loss vs. Average Forward Current

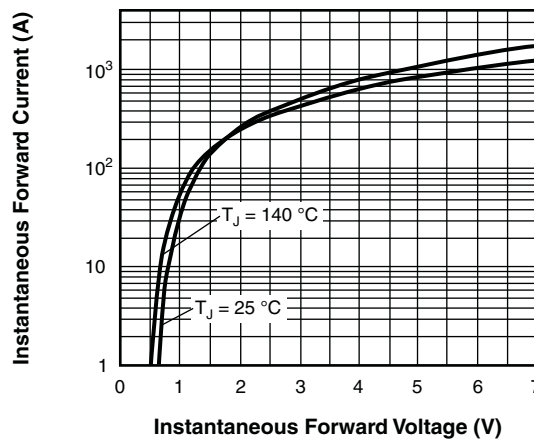


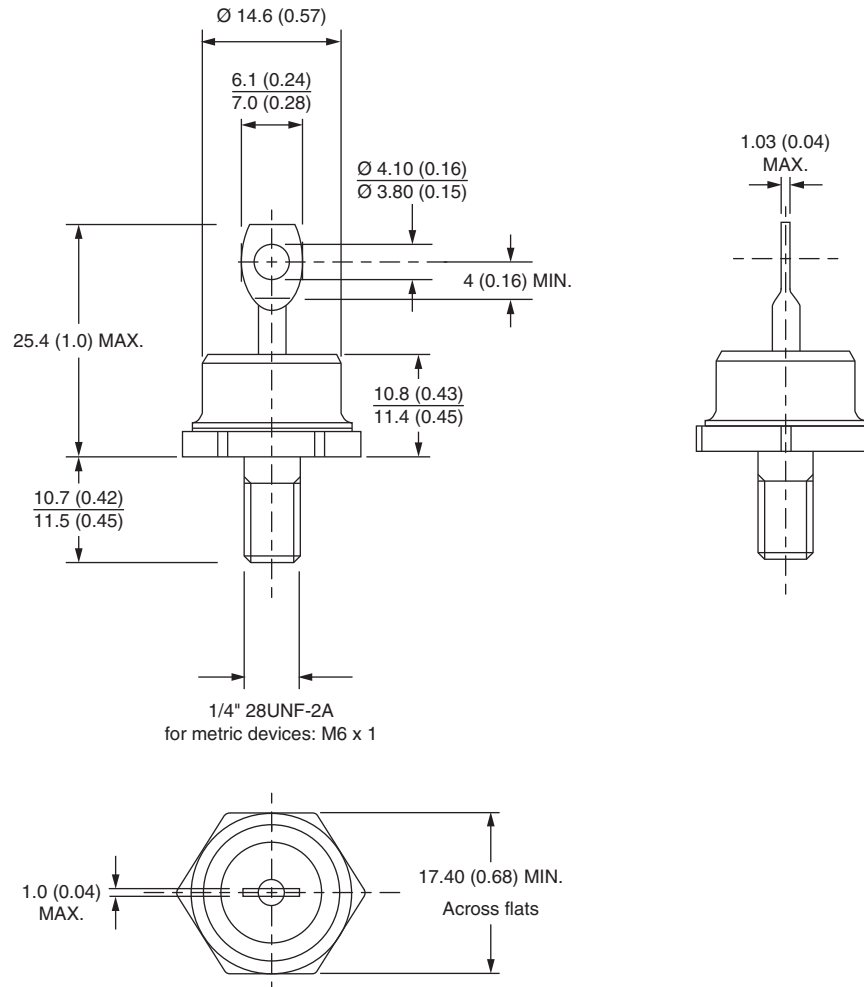
Fig. 5 - Maximum Forward Voltage vs. Forward Current

LINKS TO RELATED DOCUMENTS

| | |
|------------|--|
| Dimensions | www.vishay.com/doc?95360 |
|------------|--|

DO-203AB (DO-5) for 1N1183, 1N3765, 1N1183A, 1N2128A, 1N3208 Series

DIMENSIONS in millimeters (inches)





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